ICT 4: GSFC DAAC - ADC Interface Confidence Test

NOAA is currently the primary provider of ancillary data. NOAA provides pre-defined ancillary data sets to the ECS so support ECS standard product generation. Two NOAA organizations interface with the ECS: the National Environmental Satellite, Data, and Information Service (NESDIS) and the National Centers for Environmental Prediction (NCEP).

NESDIS maintains data in the Satellite Active Archive (SAA); the Central Environmental Monitoring Satellite Computer System (CEMSCS), operated by the Office of Satellite Data Processing and Distribution (OSDPD); and three data centers; the National Climatic Data Center (NCDC), the National Oceanographic Data Center (NODC), and the National Geophysical Center (NGDC).

NOAA's NCEP, part of the National Weather Service, produces, processes, handles, and distributes meteorological and oceanographic information to users. The GSFC DAAC pulls NCEP ancillary data products daily and makes them available on larry.gsfc.nasa.gov.

Ancillary data may be provided either via the ECS Release B system or via the GSFC DAAC ancillary data server (i.e../ external to ECS). In Release B.0 of ECS, there is a direct interface betwwn NESDIS and ECS. Ancillary data from NESDIS CEMSCS are pushed to ECS via ftp. Ancillary data from NCDC are provided via physical media to the ECS within the LaRC DAAC. ECS Release B.0 incorporates a copy of the EOSDIS version 0 (V0) IMS Client as the user interface to the ECS data holdings. This client is called the B..0
Search and Order Tool (BOSOT). In addition to ECS, the GSFC DAAC ancillary data server also provides ancillary data to instrument teams. Primarily, these ancillary data products are acquired from NCEP, but include some NESDIS product as well. These ancillary data products are pulled by the GSFC DAAC ancillary data server (larry.gsfc.nasa.gov).

Test Objectives:

The objectives of this test are to:

- Verify the ECS user has access to NESDIS/SAA to identify, browse and order data located at SAA.
- Verify the ECS user has capability to search and identify data located at NOAA Data Centers.
- Verify the ECS has the capability to ingest NOAA ancillary data for the EOS standard product generation.
- Verify the ECS has the capability to ingest TOMS ancillary data for the EOS standard product generation

Function	ICD Paragraph Verified	ICD External Interface	From-To	Implementation	Test Case
Ability to search, browse, and order data products.	Paragraph 5.2.1.1	Advertising Information	SAA - ECS	WWW	ICT4.01
	Paragraph 5.2.1.3	Guide Query	ECS - SAA	B0SOT	ICT4.01
	Paragraph 5.2.1.3	Guide Query Result	SAA - ECS	B0SOT	ICT4.01
	Paragraph 5.2.1.4	Inventory Search (contains user	ECS - SAA	B0SOT	ICT4.01

Function	ICD Paragraph Verified	ICD External Interface	From-To	Implementation	Test Case
		authentication information and cost estimate request)			
	Paragraph 5.2.1.5	Inventory Search Result (contains cost estimate)	SAA - ECS	B0SOT	ICT4.01
	Paragraph 5.2.1.6	Browse request (contains user authentication information)	ECS - SAA	B0SOT	ICT4.01
	Paragraph 5.2.1.7.1	Integrated Browse Result	SAA - ECS	B0SOT	ICT4.01
	Paragraph 5.2.1.7.2	FTP Browse Result	SAA - ECS	B0SOT	ICT4.01
Product delivery to satisfy a user request.	Paragraph 5.2.1.9	Product Request (contains user authentication information)	ECS - SAA	B0SOT	ICT4.01
	Paragraph 5.2.1.9	Product Request Confirmation (contains confirmation of receipt and contact information for status)	SAA - ECS	B0SOT	ICT4.01
Delivery of CEMSCS data sets to support ECS standard product generation.	Paragraph 5.3.2	Ancillary data	CEMS CS - ECS	FTP poll and pull	ICT4.04
Ability to search NOAA DC data holdings.	Paragraph 5.4.1	Advertising data	NOAA DC - ECS	WWW	ICT4.02
Delivery of NCEP data sets to support ECS standard product generation.	Paragraph 5.5	Ancillary data	NCEP - ECS via GSFC DAAC	FTP poll and pull	ICT4.03
Delivery of TOMS data sets to support ECS standard product generation.		Ancillary data	Code 916 - ECS via GSFC DAAC	FTP	ICT4.05

NOTE: The B0SOT or JEST implementation will be used depending upon which is available at the time the test is run.

EXHIBIT 1: SCF Interface Data Flows and Test Case Mapping

Test Configuration:

Hardware and software configuration at each ECS site are managed and operated by M&O organization at that site. The most current configuration status will be obtained prior to start of testing and referenced in the test report.

EXHIBIT 1 shows the test environment.

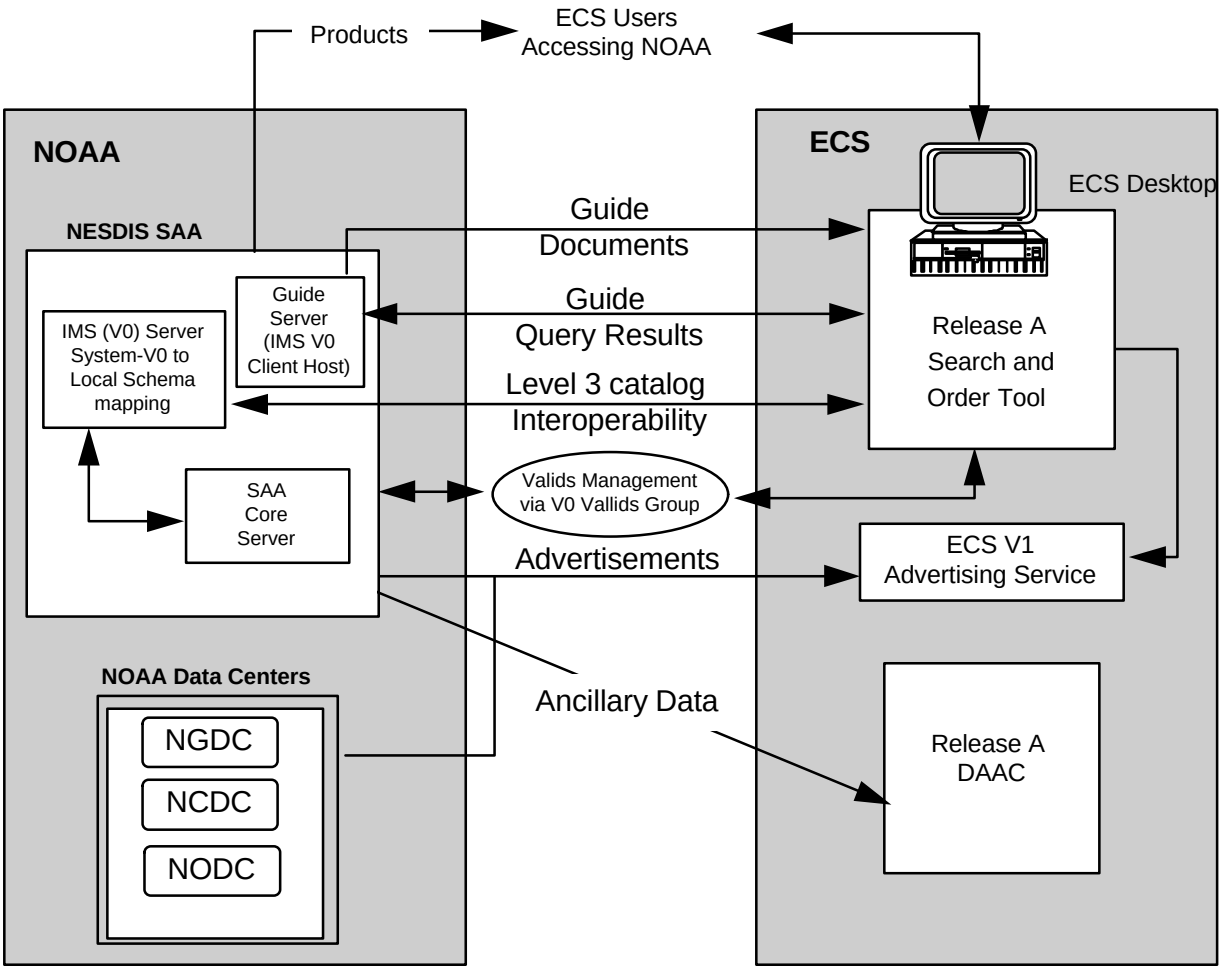

EXHIBIT 1: ECS - NOAA Interface

Participant and Support Requirements:

Participants: Maintenance and Operations (M&O) personnel at LaRC DAAC, NSIDC DAAC

NOAA/NESDIS Operations personnel

EBnet (Network Manager, as needed)

I&T

Larry Server {GSFC)

Code 916 - Ozone Processing Team (Atmospheric Chemistry and Dynamics Branch, GSFC)

Communications:

Voice:

TBD

Data:

EBnet connections at LaRC DAAC and NOAA/NESDIS
NASA Science Internet (NSI)
IP addresses: **TBS**

Equipment and Software:

Data Delivery Server
SAA Server
DAAC Ingest Operator Workstation
Ingest GUI

ECS Management Subsystem Server
ECS Ingest Server
Ingest Subsystem
Advertising Subsystem
Release B Client
Larry Server

Test Tools:

TBD

Test Data:

Description/Characteristics	Source
ADEOS/NSCAT Overwater Surface Wind Vectors File Names: TBD	NESDIS/ CEMSCS
Advertisements for NOAA Data Center products	NOAA Data Center (NODC, NGDC, NCDC), NESDIS/SAA
Final Analysis and Forecast System, Global Analysis (FNL) - GRIB Format File Name: TBD ESDT Short Name: TBD	NCEP

1-Degree Medium Range Forecast System, Forecast 00Z (MRF) - GRIB Format File Name: drfmr.PGrbF00.YYMMDD.HHz ESDT Short Name: MRF File Size: .5MB	NCEP
1-Degree Global Data Assimilation Model (GDAS) Product - GRIB Format File Name: gdas1.PGrbF00.YYMMDD.HH ESDT Short Name: GDAS_OZF File Size: 1.97MB	NCEP
Ship/Buoy Observations(Locations) File Name: shpYYMMDD.HHz.bufr d.unbl ESDT Short Name: SHBU_OBS File Size: 1MB	NCEP
Reynolds Blended SST Weekly Product File Name: oi.mean.bias.yymmdd ESDT Short Name: REYNSST File Size: .26MB ESDT Short Name: MRF	NCEP
T62 Spectral Coefficients (Sigma Product) File Name: gdas2.Sanl.YYMMDD.HH ESDT Short Name: NCEP04 File Size: 2.3MB	NCEP
1-Degree Aviation Model (AVN) Product File Name: gblav.PGrbF00.YYMMDD.HH ESDT Short Name: AVIA_AN File Size: 15.9MB	NCEP
SSM/I Daily Sea Ice Product File Name: northpsg.YYMMDD ESDT Short Name: TBD File Size: .226 kB	NCEP
TOVS Ozone Daily Product File Name: YYMMDD.grb ESDT Short Name: TBD File Size: .098MB	NCEP
TOVS Ozone Twice-Daily Product File Name: tovs.YYMMDD.HHz.bufr d.unblok ESDT Short Name: TBD File Size: 7.61MB	NCEP
Surface Flux data File Name: gdas.SFLUXGrbF06.YYMMD ESDT Short Name: NCEP03 File Size: .4.1MB	NCEP
EP/TOMS Data File Name: TOMSEP_DAILY_yymmdd.HDF ESDT Short Name: OZONEEP File Size: .163 KB	Code 916
ADEOS/TOMS Data	Code 916

Communication:

Telephone

Test Tools:

N/A

Test Case Summary:

Test Case ID	Test Case Description
ICT4.1	Verify the ECS user has the capability to search, browse and order data resident at the NESDIS SAA and verify the capability of viewing SAA advertised information.
ICT4.3	Verify the ECS has timely access and ingest capability of NOAA NCEP ancillary data sets at LaRC from the GSFC Data Link Server and the capability of the GSFC Data Link Server to receive NCEP data via FTP.
ICT4.4	Verify the ECS has timely access and ingest capability of NOAA CEMSCS ancillary data sets at GSFC for the production of EOS standard products.
ICT4.5	Verify the ECS has timely access and ingest capability of TOMS/EP and TOMS ADEOS ancillary data sets at LaRC from the GSFC Data Link Server and the capability of the GSFC Data Link Server to receive TOMS/EP and TOMS ADEOS data via FTP from Code 916..

Test Case Descriptions:

ICT4.1 Verify the ECS user has the capability to search, browse and order data resident at the NESDIS SAA and verify the capability of viewing SAA advertised information.

Requirements to be Verified:

NOAA0010	NOAA0030, EOSD170	NOAA0100, IMS-0380, IMS-0600, EOSD12710	NOAA0150, SMC-5320
NOAA0210, IMS-0620, IMS-0860, IMS-0870	NOAA0220, IMS-0620, IMS-0860, IMS-0870	NOAA0250, IMS-0620, IMS-0860, IMS-0870	NOAA0260, IMS-0620, IMS-0860, IMS-0870
NOAA0290, IMS-0620, IMS-0860, IMS-0870	NOAA0300, IMS-0620, IMS-0860, IMS-0870, EOSD-1502	NOAA0330, IMS-1350	NOAA0410, IMS-0880, IMS-1290, EOSD1710
NOAA0440, IMS-1310, EOSD1710	NOAA0600, EOSD1710	NOAA0620, SMC1500, EOSD1710	

This test verifies that ECS users are able to search, browse and order data from the NESDIS SAA. It also verifies that the NESDIS SAA is capable of advertising its holdings to the ECS users.

Test Case ID	Step Type	Station	Operator Action	Expected Results	Comments
V2-ICT-04.01	TS	ECS, NESDIS	Login.	Entry into respective environments.	
	TS	ECS	View advertising from the SAA.	User allowed to view advertising information	
	TS	ECS	The user submits a guide query	User is able to retrieve SAA guide documents	
	TS	ECS	The user submits an inventory search	An inventory search result is sent the user.	
	TE	ECS	The user submits a request to browse SAA products.	User is allowed to browse SAA products.	
	TE	ECS	The user submits a product request	The user receives a product request confirmation message.	If the user receives a confirmed message the user will receive the requested product directly from the SAA.

ICT4.3 Verify the ECS has timely access and ingest capability of NOAA NCEP ancillary data sets at LaRC from the GSFC Data Link Server and the capability of the GSFC Data Link Server to receive NCEP data via FTP.

Requirements to be Verified:

NOAA0710, SDPS0020, DADS0145, EOSD1710

Test Case ID	Step Type	Station(s)	Operator Action	Expected Results	Comments
V2-ICT-04.03	TS	ECS	Log in as operator.	Entry into respective environments.	
		ECS	GSFC Data Link Sever receives FTP'd NCEP data.		
	TE	ECS	FTP daemon detects and acquires a PDR	The system validates the information contained in the PDR	
	TE	GDAAC	Invalid PDR	LaRC DAAC automatically returns Product Delivery Record Discrepancy (PDRD) via e-mail	Verify the PDR contains all the correct PVL parameters. Verify the PDRD message. Verify the required generic and specific metadata is present.
	TE	GDAAC	Valid PDR	LaRC DAAC pulls data using FTP get command..	
	TE	ECS	Use system monitor to observe PDR transfer.	PDR transfers successfully.	
	TE	ECS	Use system monitor to observe PDR validation.	PDR is validated successfully.	Verify the PDR contains all the correct PVL parameters. Verify the PDR message.
	TE	ECS	Use system monitor to observe scheduling of data file transfer. Observe file transfer.	Data is transferred successfully.	
	TE	ECS	After ingest/archive, LaRC DAAC automatically sends Production Acceptance Notification (PAN) via e-mail.	PAN is transferred successfully.	Verify the PAN contains all the correct PVL parameters.

ICT4.4 Verify the ECS has timely access and ingest capability of NOAA CEMSCS ancillary data sets at GSFC and LaRC for the production of EOS standard products.

Requirements to be Verified:

NOAA0510, SDPS0020, DADS0145, EOSD1710, EOSD-1502	NOAA0560, SMC1500, EOSD1710	NOAA0620, SMC1500, EOSD1710

This test will verify that ECS can utilize an automated ftp interface to identify and acquire the ancillary data required from the CEMSCS.

Test Case ID	Step Type	Station(s)	Operator Action	Expected Results	Comments
V2-ICT5-02.01	TS	ECS, GDAAC	Log in as operator.	Entry into respective environments.	
	TE	ECS	NESDIS CEMSCS pushes data to the ECS Staging Server.		
	TE	GDAAC	The LaRC DAAC will use a polling without delivery record protocol to ingest the files from the ECS Staging Server.	.	
	TE	GDAAC	The LaRC DAAC will ingest nine Third Generation Global Vegetation Index Files.	The files are ingested.	
	TE	ECS	The LaRC DAAC will ingest one Aerosol Global Analyzed file.	The files are ingested.	
	TE	ECS	The LaRC DAAC will ingest four Snow/Ice Cover (Navy Algorithm) files.	The files are ingested.	
	TE	ECS	The LaRC DAAC will ingest two SBUV/2 Startospheric Ozone Profile files.	The files are ingested.	
	TE	ECS	The LaRC DAAC will ingest two HIRS/2 Column Ozone files.	The files are ingested.	
	TE	ECS	The GSFC DAAC will ingest ADEOS/NSCAT Overwater Surface Wind Vectors.	The files are ingested.	

ICT4.5 Verify the ECS has timely access and ingest capability of TOMS/EP and TOMS ADEOS ancillary data sets at LaRC from the GSFC Data Link Server and the capability of the GSFC Data Link Server to receive TOMS/EP and TOMS ADEOS data via FTP from Code 916.

Requirements to be Verified:

This test will verify that the GSFC Data Link Server is capable of receiving FTP's TOMS data from Code 916 and verify the capability of LaRC to poll the ECS system to ingest the TOMS data using the polling with delivery record transfer mechanism.

Test Case ID	Step Type	Station(s)	Operator Action	Expected Results	Comments
V2-ICT-04.05	TS	ECS, GDAAC	Log in as operator.	Entry into respective environments.	
		ECS	GSFC Data Link Sever receives FTP'd TOMS/EP data TOMS/ADEOS data from Code 916		
	TE	ECS	Launch FTP daemon. Set periodicity to 30 seconds.		
	TE	GDAAC	Place test data file in designated directory on the GDAAC Data Link Server (larry). Execute directory listing.	Listing shows DMF.	
	TE	GDAAC	Create a valid PDR and place in its designated directory. Execute directory listing.	Listing shows PDR.	
	TE	ECS	Use system monitor to observe PDR transfer.	PDR transfers successfully.	
	TE	ECS	Use system monitor to observe PDR validation.	PDR is validated successfully.	
	TE	ECS	Use system monitor to observe scheduling of test data file transfer. Observe file transfer.	Test data is transferred successfully.	
	TE	ECS	Open FTP connection. Send Production Acceptance Notification (PAN).	PAN is transferred successfully.	
	TE	ECS	Compare test data file to original test data	Original test data and transferred file are	

			staged in another directory.	identical.	

Appendix: Test Package Requirements Summary

Requirement	Description	Test Case(s)
DADS0145	Each DADS shall be capable of receiving from the ADCs, at a minimum, the following for the purpose of product generation: a. L0-L4 equivalent data sets b. Metadata c. Ancillary data d. Calibration data e. Correlative data f. Documents g. Algorithms	4.3, 4.4
EOSD1502	ECS elements shall use EBnet for data communications for the following types of data: a. Production data sets (Level 0 data) b. Expedited data sets c. Real-time data (for health and safety) d. Command data e. Data requested from back-up archive f. TDRSS schedule requests g. Data exchange with the FDF h. Production Data Transfers between DAACs i. Management Data exchange with SMC j. Data Products Exchange with ADCs, IPs, and Others.	4.1, 4.2, 4.3, 4.4
EOSD1710	ECS elements shall exchange with ADCs/ODCs, such as NOAA and other data processing and archiving facilities, information including the following: a. Directories b. Product Orders c. Order Status d. Science Data e. Management Data	4.1, 4.2
IMS0380	The IMS shall provide the capability to exchange directory data with IP data centers, ADCs, and selected ODCs.	4.1, 4.2
IMS0600	The IMS shall provide the capability to search a directory of information that describes whole EOSDIS, non-EOSDIS, and ADC earth science data sets.	4.1, 4.2
IMS0620	The IMS shall provide access to inventories of selected ODCs and ADCs via level II and level III catalog interoperability	4.1, 4.2
IMS0860	The IMS shall provide an interface to ADC and ODC data systems and archives that produce, process,	4.1, 4.2

	and/or maintain Earth science data sets and that have agreed to make the information and services available to ECS.	
IMS0870	The IMS shall provide access in accordance with MOUs to ADC and ODC data that a. Has been generated by ADC and ODC data systems b. Is stored by ADC and ODC archives and requested by EOSDIS users c. Is required as ancillary data for production processing.	4.1, 4.2, 4.3, 4.4
IMS0880	The IMS shall provide an interface to the ADC and ODC archives for ordering data to be delivered directly to the user or to a DADS.	4.1, 4.2
IMS1290	The IMS shall send a product order to an ADC or an ODC with the identification of the destination DADS and suggested shipping deadline for data required for product processing.	
IMS1310	The IMS shall provide the capability to accept, from product requesters, product distribution status request, retrieve the request status, and display the status to the requester for an ECS, ADC, or ODC data product.	4.1, 4.2
IMS1350	The IMS shall provide the capability for users to preview billing costs, which are based upon MOUs with the ADC and non-EOSDIS data centers, prior to ADC and non-EOSDID data product order submission.	4.1, 4.2
NOAA0010	The interface between ECS and the SAAs shall support one-way level 2 or 3 catalog interoperability as defined by the CEOS such that an ECS user can access the SAA.	4.1
NOAA0020	The ECS shall maintain a controlled list of the mutually-agreed data sets required from the NOAA ADC to support ECS standard product generation.	4.3
NOAA0030	The interface providing catalog interoperability between the ECS and the SAA shall support the V0 protocol	4.1
NOAA0100	The SAAs shall have the capability to send and the ECS shall have the capability to receive advertising information.	4.1
NOAA0150	The ECS shall have the capability to send and the SAAs shall have the capability to receive User Authentication Information.	4.1
NOAA0210	The ECS shall have the capability to send and the SAAs shall have the capability to receive Guide Queries.	4.1
NOAA0220	The SAAs shall have the capability to send and the	4.1

	ECS shall have the capability to receive Guide Query Results.	
NOAA0250	The ECS shall have the capability to send and the SAAs shall have the capability to receive Inventory Queries.	4.1
NOAA0260	The SAAs shall have the capability to send and the ECS shall have the capability to receive Inventory Query Results.	4.1
NOAA0290	The ECS shall have the capability to send and the SAAs shall have the capability to receive Browse Requests.	4.1
NOAA0300	The SAAs shall have the capability to send and the ECS shall have the capability to receive Browse Results.	4.1
NOAA0330	The ECS shall have the capability to send and the SAAs shall have the capability to receive Cost Estimate Requests.	4.1
NOAA0340	The SAAs shall have the capability to send and the ECS shall have the capability to receive Cost Estimates.	4.1
NOAA0410	The ECS shall have the capability to send and the SAAs shall have the capability to receive Product Requests.	4.1
NOAA0440	The SAAs shall have the capability to send and the ECS shall have the capability to receive Product Delivery Status.	4.1
NOAA0510	The SAAs shall have the capability to send and the ECS shall have the capability to receive data sets to be used as ancillary data for ECS standard product generation	????
NOAA0560	The SAAs and the ECS shall have the capability to perform ancillary data Schedule Adjudication via telephone.	????
NOAA0600	The SAAs shall have the capability to send and the ECS shall have the capability to receive Network Management information.	4.1
NOAA0620	The ECS and the NOAA SAAs shall have the capability to coordinate Network Management issues via telephone.	4.1
NOAA0710	The NMC shall have the capability to send and the ECS shall have the capability to receive data sets to be used as ancillary data for ECS standard product generation.	4.4
NOAA0800	The NOAA Data Centers shall have the capability to send and the ECS shall have the capability to receive advertising information.	4.2
NOAA0810	The NOAA Data Centers and the ECS shall have the	4.3

	capability to perform ancillary data Schedule Adjudication via telephone.	
NOAA0820	The NOAA Data Centers shall have the capability to send and the ECS shall have the capability to receive data sets requested by ECS as ancillary data for ECS standard product generation.	4.3
SDPS0020	The SDPS shall receive EOS science, engineering, ancillary, and expedited data from the EDOS, the SDPF, and the IPs, and non-EOS data, in situ data, associated algorithms, documentation, correlative data (as listed in Appendix C) from ADCs, EPDSs, and ODC.	4.3, 4.4